TCM-919

SERVICE MANUAL

US Model
Canadian Model
AEP Model
UK Model
E Model

Model Name Using Similar Mechanism	NEW
Tape Transport Mechanism Type	MT-919

SPECIFICATIONS

Recording system 2-track 1-channel monaural
Speaker Approx. 6.6 cm ($2^5/_8$ in.) dia.
Frequency response
150 – 6,300 Hz
Input Microphone input jack (minijack)
sensitivity 0.25 mV for low impedance microphone
Output Earphone jack (minijack)
for 8 – 300-ohm earphone
Power output 400 mW (at 10% harmonic distortion) (DC)
Power requirements

	AC operation	DC operation
US, Canadian model	120 V AC, 60 Hz	6 V DC four R14 (size C) batteries
UK model	240 V AC, 50 Hz	
AEP, E, Saudi Arabia model	220 – 230 V AC, 50 Hz	

Battery life (hours)

Batteries	Recording
Sony battery SUM-2 (NS)	Approx. 4
Sony alkaline battery AM2 (N)	Approx. 10

For maximum performance, we recommend the use of alkaline batteries.

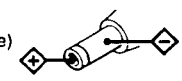
Dimensions Approx. 237 x 71 x 154 mm (w/h/d) ($9^3/_8$ x $2^7/_8$ x $6^1/_8$ in.) incl. projecting parts and controls
Mass Approx. 980 g (2.2 lb. 34.6 oz.) incl. batteries
Supplied accessories
AC power adaptor (1) (for US, Canadian, AEP, UK model only)

Design and specifications subject to change without notice.

Note
This appliance conforms with EEC Directive 87/308/EEC regarding interference suppression.

Note on the AC power adaptor
Use only the supplied AC power adaptor (for US, Canadian, AEP, UK model only) or the AC-E60M AC power adaptor (not supplied). Do not use any other AC power adaptor.

Polarity of the plug
(Unified polarity type)



MICROFILM

CASSETTE CORDER
SONY®

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

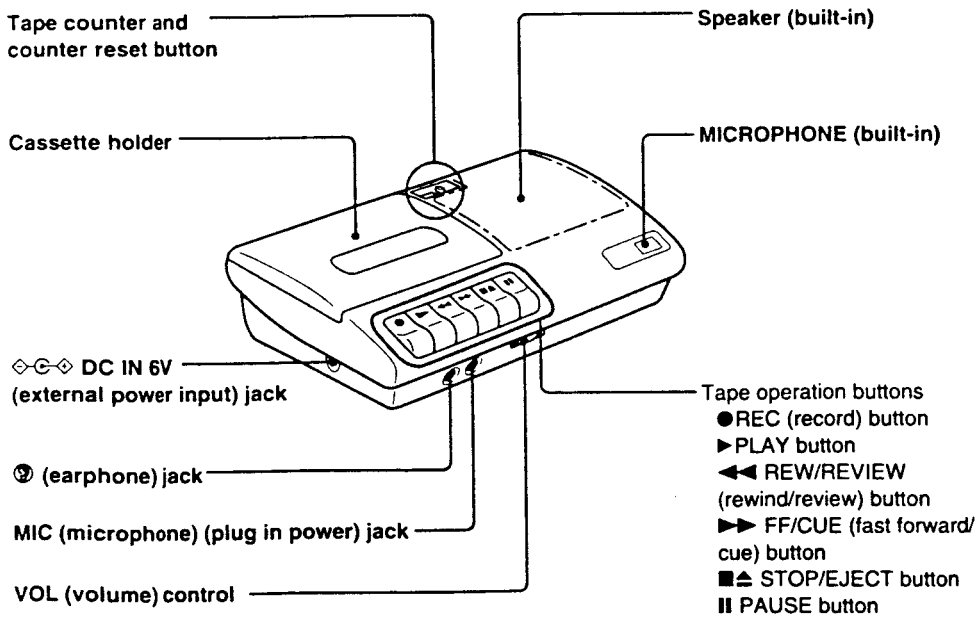
ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER SES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

SECTION 1
GENERAL

This section is extracted from instruction manual.

Parts Identification

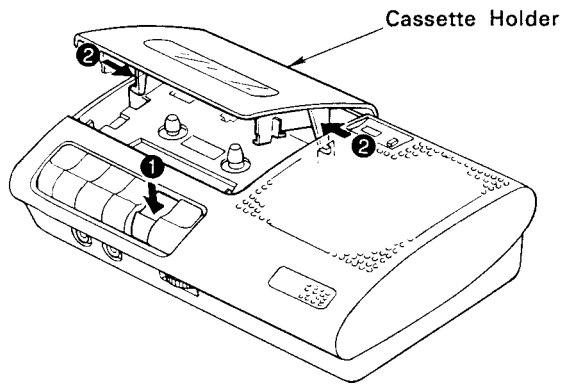


SECTION 2
DISASSEMBLY

REMOVAL OF THE CASSETTE HOLDER

Note : Follow the disassembly procedure in the numerical order given.

1. OPEN the cassette holder.
   (Push button STOP/EJECT)
2. Release the cassette holder while pushing the latches.



SECTION 3
ADJUSTMENTS

3-1. MECHANICAL ADJUSTMENT

PRECAUTION

1. Clean the following parts with a denatured-alcohol-moistened swab:
   record / playback head — pinch roller
   erase head — rubber belts
   capstan — idler
2. Demagnetize the record / playback head with a head demagnetizer
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed in the rated power supply voltage unless otherwise noted.

Torque Measurement

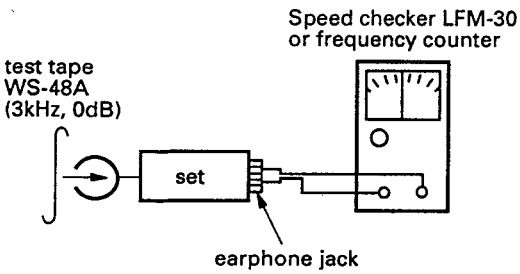
Torgue	Torque meter	Meter reading
FWD	CQ-102C	30 to 60g•cm (0.42 to 0.84 oz•inch)
FWD Back tension	CQ-102C	1 to 5g•cm (0.014 to 0.07 oz•inch)
FF, REW	CQ-201B	55 to 140g•cm (0.77 to 1.96 oz•inch)

3-2. ELECTRICAL ADJUSTMENT

Tape Speed Adjustment

Setting :
VOL control : mechanical mid.

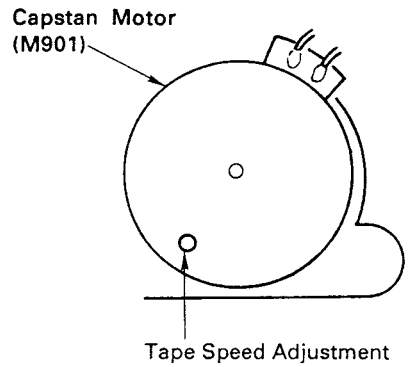
Adjustment Procedure :
1. Mode : Playback



Specification :

Speed Checker	Frequency Counter
±3%	2,910Hz-3,090Hz

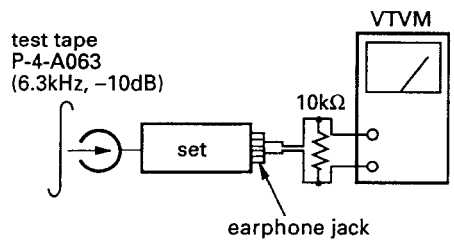
Adjustment Location : Capstan Motor (M901)



Record / Playback Head Azimuth Adjustment

Setting :
VOL control : mechanical mid.

Adjustment Procedure :
1. Mode : Playback

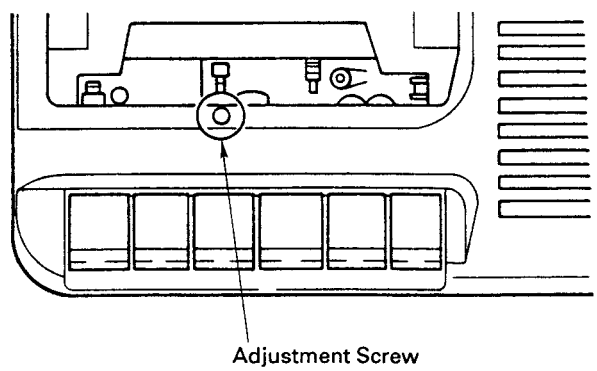


2. Turn the adjustment screw for maximum VTVM reading.

Note : Serval peaks may appear, but take the maximum.

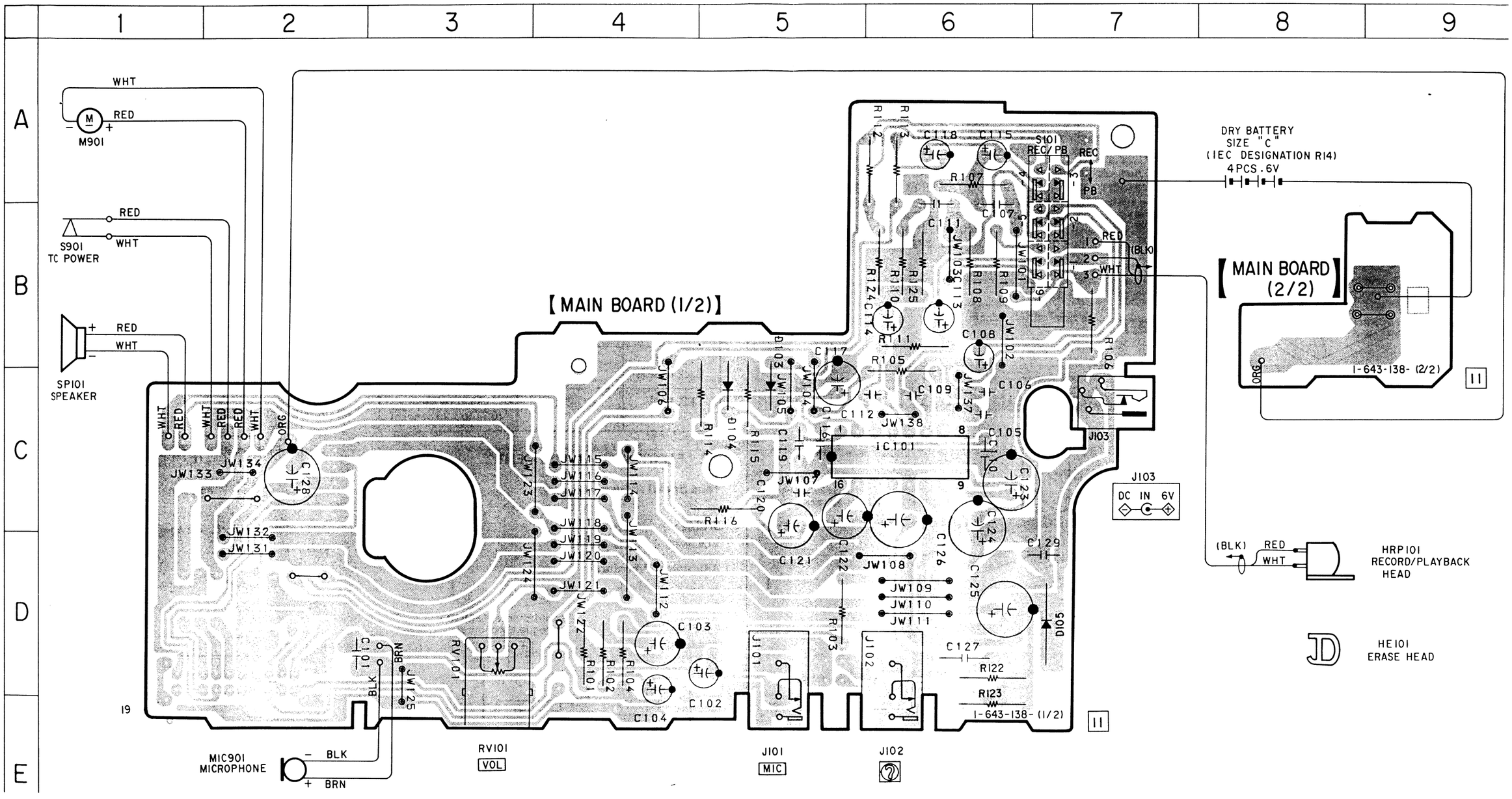
3. After the adjustment, lock the screws with locking compound.

Adjustment Location : Record/Playback Head



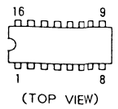
SECTION 4
DIAGRAMS

4-1. PRINTED WIRING BOARDS

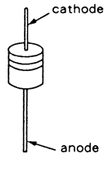


4-2. SEMICONDUCTOR LEAD LAYOUTS

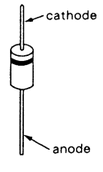
LA4162



1SS119



10E2



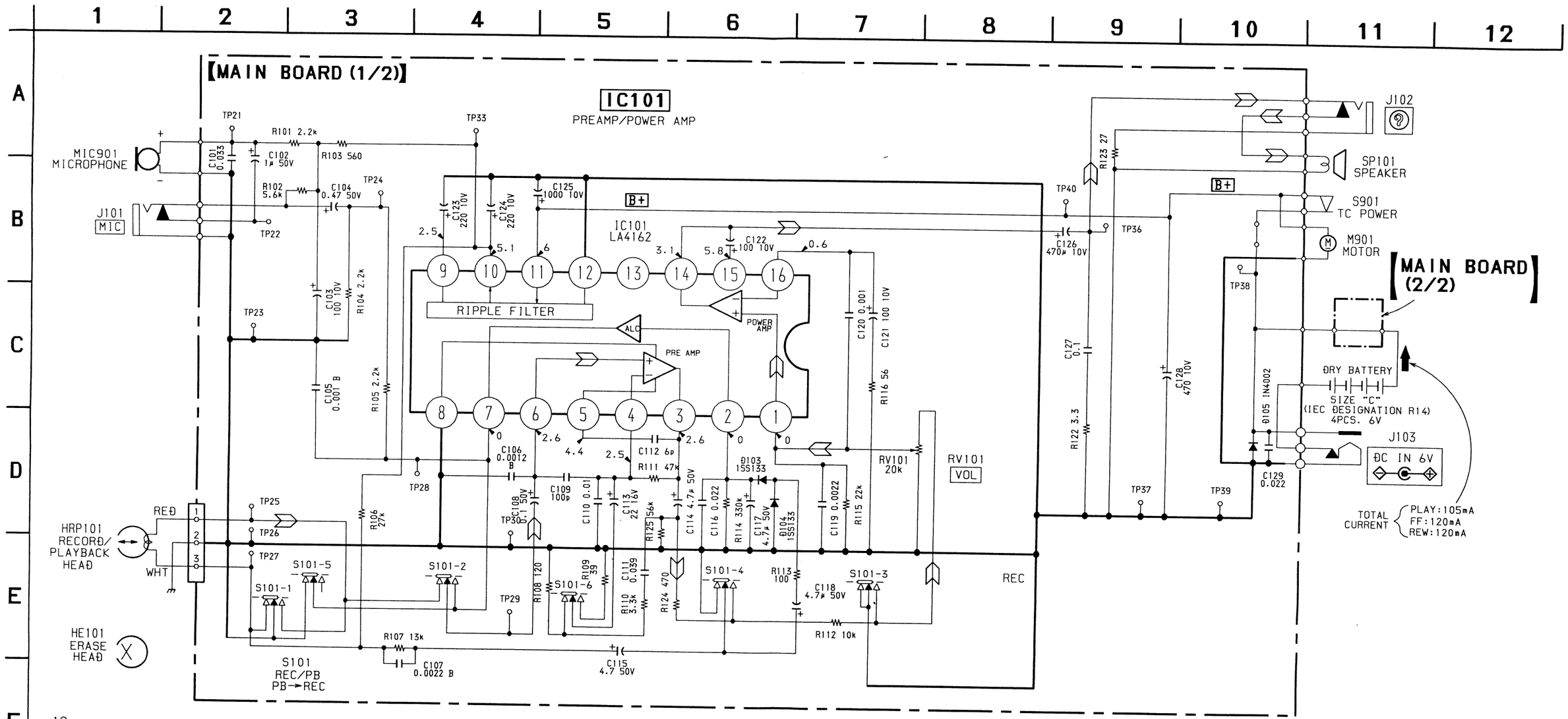
● SEMICONDUCTOR LOCATION

Ref. No.	Location
D103	C-5
D104	C-5
D105	D-7
IC101	C-6

Notes on printed wiring boards:

- ○——: Indicated a lead wire mounted on the component side.
- ▒▒: Pattern from the side which enables seeing.

4-3. SCHEMATIC DIAGRAM



Notes on schematic diagram:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, 1/4W or less unless otherwise noted.
- **B+**: B + Line
- Voltage are dc with respect to ground under no-signal conditions.
- No mark : PLAY
- Voltages are taken with a VOM (input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Total current is measured with no cassette installed.
- Signal path
  ▷: PLAY

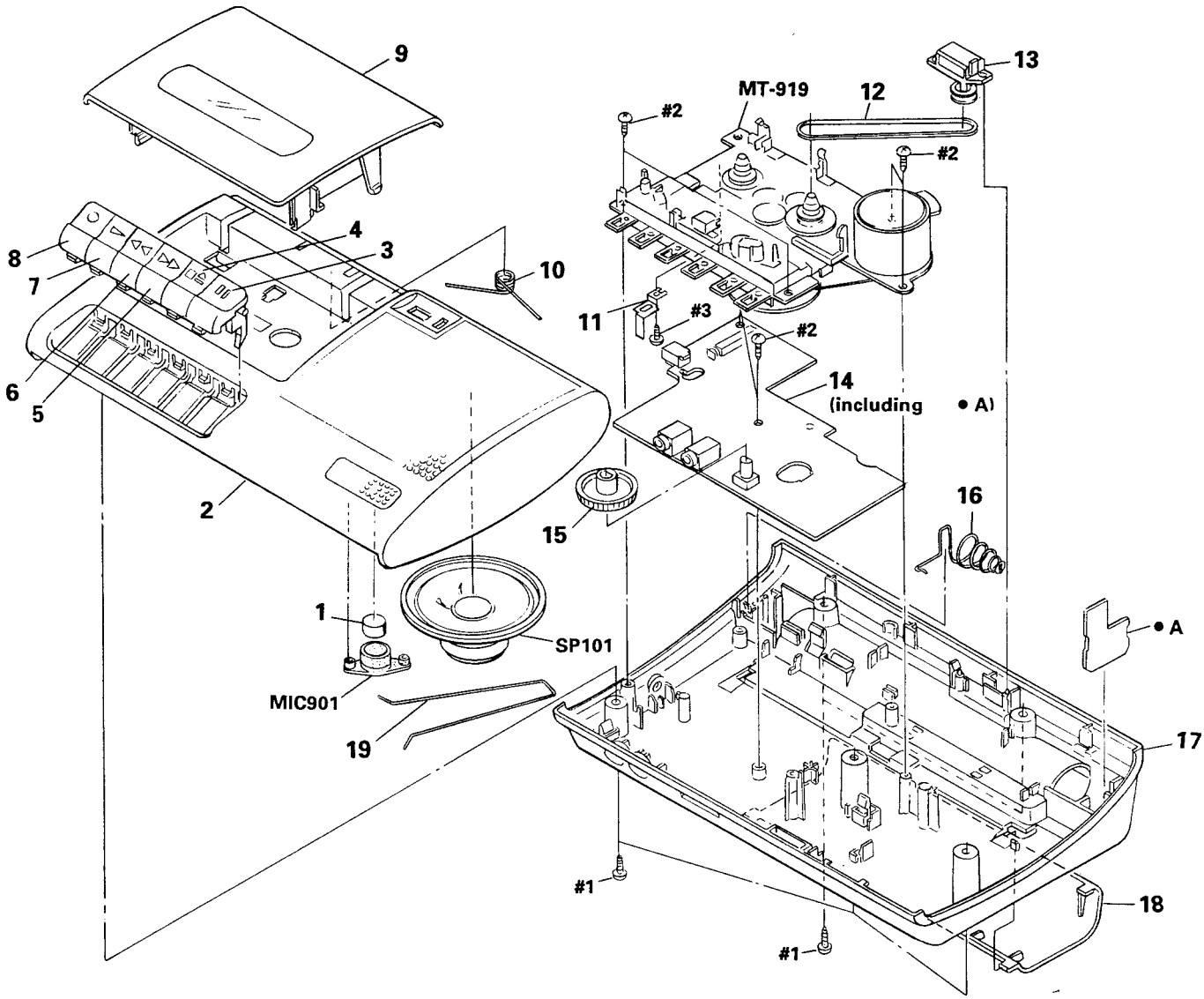
SECTION 5
EXPLODED VIEWS

NOTE:
- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB,BALANCE(WHITE)...(RED)
  ↑ ↑
  Parts color Cabinet's color
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware(# mark) list is given in the last of this parts list.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

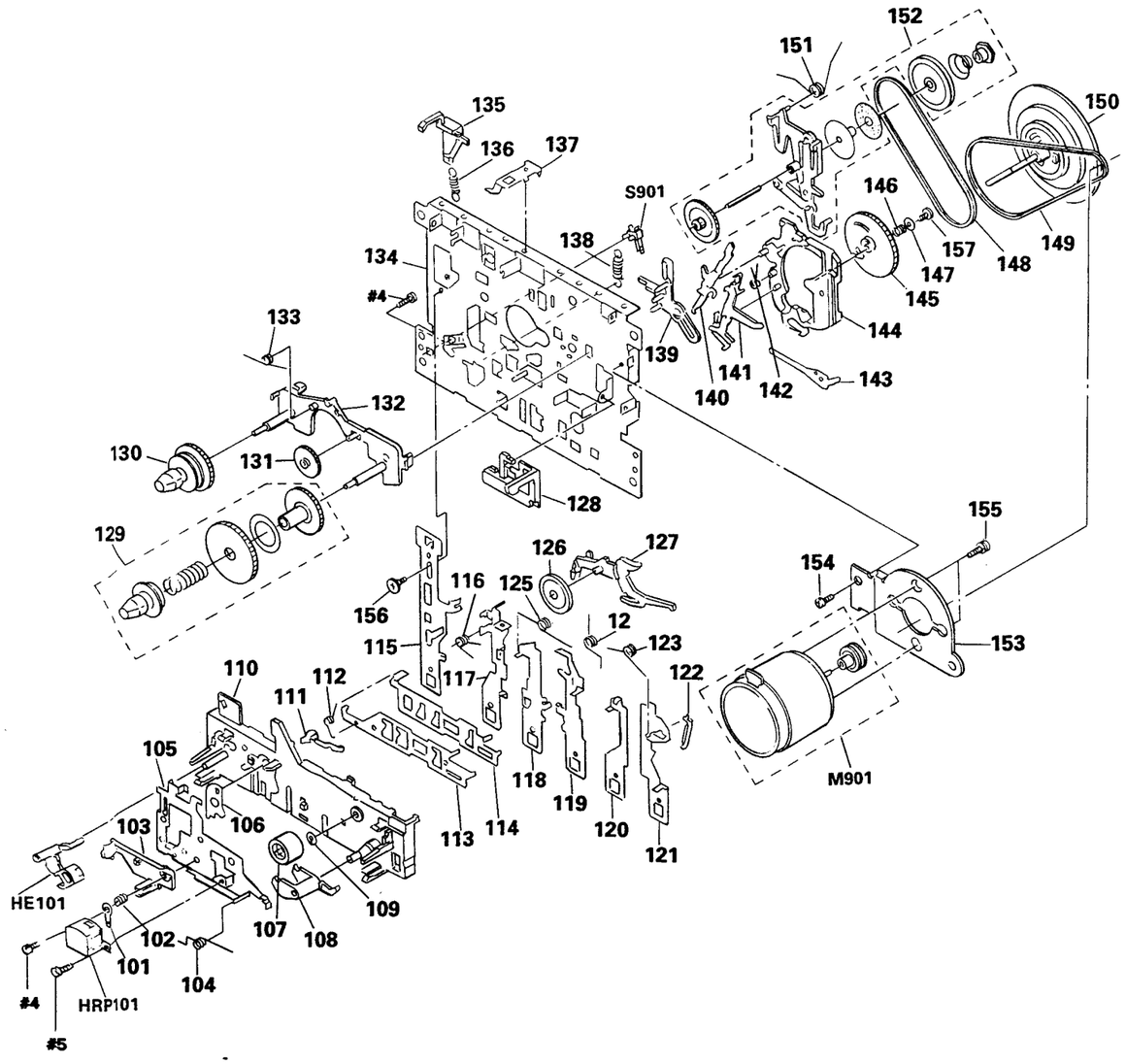
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

5-1. CABINET SECTION

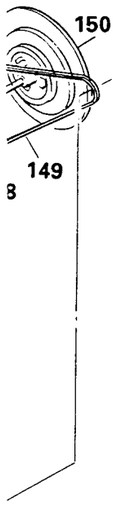


Ref.No.	Part No.	Description	Remarks
* 1	3-348-316-01	CUSHION, MICROPHONE	
2	3-384-689-01	CASE, UPPER	
3	3-384-680-01	BUTTON (PAUSE), CASSETTE	
4	3-384-687-01	BUTTON (STOP/EJECT), CASSETTE	
5	3-384-685-01	BUTTON (FF), CASSETTE	
6	3-384-686-01	BUTTON (REW), CASSETTE	
7	3-384-684-01	BUTTON (PLAY), CASSETTE	
8	3-384-677-01	BUTTON (REC), CASSETTE	
9	X-3366-072-1	COVER ASSY, CASSETTE	
10	3-384-676-01	SPRING, TORSION	
11	3-384-679-01	SPRING, REC	
12	3-384-783-01	BELT, COUNTER PULLEY	
13	1-548-608-11	COUNTER, TAPE (SMALL TYPE)	
* 14	A-3060-620-A	MAIN BOARD, COMPLETE	
15	3-384-678-01	KNOB, VOLUME	
16	3-384-785-01	TERMINAL, BATTERY	
17	3-384-688-01	CASE, LOWER	
18	3-384-682-01	COVER, BATTERY	
19	3-384-784-01	SPRING, SPEAKER STOPPER	
MIC901	8-814-186-00	MICROPHONE, ELECTRET CONDENSER	
SP101	1-504-200-11	SPEAKER (6cm)	

5-2. CASSETTE MECHANISM SECTION (MT-919)



Ref. No.	Part No.	Description	Remarks
101	3-363-230-01	LUG	
102	3-362-985-01	SPRING	
103	3-362-986-01	HOLDER, HEAD	
104	3-362-983-01	SPRING	
‡ 105	3-362-984-01	HEAD (BASE)	
106	3-385-832-01	LINK, CR	
107	3-362-982-01	PINCH ROLLER	
108	3-362-981-01	PINCH ARM	
109	3-362-980-01	WASHER	
110	3-385-819-01	FRAME ASSY	
111	3-385-831-01	ARM, CR	
112	3-385-821-01	SPRING	
113	3-385-820-01	PLATE, FUNCTION	
114	3-385-822-01	LEVER, SW	
‡ 115	3-362-947-01	LEVER, REC	
116	3-362-954-01	SPRING	
‡ 117	3-362-948-01	LEVER, PLAY	
‡ 118	3-362-949-01	LEVER, REW	
‡ 119	3-362-950-01	LEVER, FF	
120	3-385-824-01	LEVER, SE	
‡ 121	3-362-952-01	LEVER, PAUSE	
122	3-362-953-01	ARM, PAUSE	
123	3-362-957-01	SPRING	
124	3-362-956-01	SPRING	
125	3-362-955-01	SPRING	
126	3-362-960-01	PULLEY, IDLER	
127	3-362-959-01	ARM, IDLER	
128	3-362-968-01	LEVER, EJECT	
129	3-362-962-01	REEL ASSY, T	
130	3-362-963-01	REEL, S	
131	3-362-965-01	IDLER, FF	
132	3-362-961-01	SPINDLE (BASE)	
133	3-372-120-01	SPRING	
‡ 134	3-362-941-01	CHASSIS	
135	3-385-825-01	INTERLOCK	
136	3-904-314-01	SPRING	
137	3-362-967-01	SPRING, CASSETTE	
138	3-362-971-01	SPRING	
139	3-362-972-01	SENSOR	
140	3-362-976-01	LEVER, CONTROL	
141	3-362-975-01	LEVER, SENSOR	
142	3-362-977-01	SPRING	
143	3-362-978-01	SPRING, PLATE	
144	3-362-973-01	AS (BASE)	
145	3-362-974-01	GEAR, CAM	
146	3-369-962-01	SPRING, COMPRESSION	
147	3-369-961-01	WASHER	
148	3-385-829-01	BELT	
149	3-385-833-01	BELT (X TYPE)	
150	3-385-827-01	FLYWHEEL ASSY	
151	3-362-970-01	SPRING	
152	3-385-826-01	IDLER ASSY, PF	
‡ 153	3-385-828-01	HOLDER, MOTOR	
154	3-363-229-01	SCREW	
155	3-385-830-01	SCREW	
156	3-362-958-01	SCREW	
157	3-366-352-01	SCREW	
HE101	1-500-009-11	HEAD, MAGNETIC (ERASE)	
HRP101	1-543-776-11	HEAD, MAGNETIC (REC/PB)	
M901	X-3366-071-1	MOTOR ASSY	
S901	1-572-538-11	SWITCH, LEAF (TC POWER)	



Ref. No.	Part No.	Description	Remarks
101	3-363-230-01	LUG	
102	3-362-985-01	SPRING	
103	3-362-986-01	HOLDER, HEAD	
104	3-362-983-01	SPRING	
* 105	3-362-984-01	HEAD (BASE)	
106	3-385-832-01	LINK, CR	
107	3-362-982-01	PINCH ROLLER	
108	3-362-981-01	PINCH ARM	
109	3-362-980-01	WASHER	
110	3-385-819-01	FRAME ASSY	
111	3-385-831-01	ARM, CR	
112	3-385-821-01	SPRING	
113	3-385-820-01	PLATE, FUNCTION	
114	3-385-822-01	LEVER, SW	
* 115	3-362-947-01	LEVER, REC	
116	3-362-954-01	SPRING	
* 117	3-362-948-01	LEVER, PLAY	
* 118	3-362-949-01	LEVER, REW	
* 119	3-362-950-01	LEVER, FF	
120	3-385-824-01	LEVER, SE	
* 121	3-362-952-01	LEVER, PAUSE	
122	3-362-953-01	ARM, PAUSE	
123	3-362-957-01	SPRING	
124	3-362-956-01	SPRING	
125	3-362-955-01	SPRING	
126	3-362-960-01	PULLEY, IDLER	
127	3-362-959-01	ARM, IDLER	
128	3-362-968-01	LEVER, EJECT	
129	3-362-962-01	REEL ASSY, T	
130	3-362-963-01	REEL, S	
131	3-362-965-01	IDLER, FF	
132	3-362-961-01	SPINDLE (BASE)	
133	3-372-120-01	SPRING	
* 134	3-362-941-01	CHASSIS	
135	3-385-825-01	INTERLOCK	
136	3-904-314-01	SPRING	
137	3-362-967-01	SPRING, CASSETTE	
138	3-362-971-01	SPRING	
139	3-362-972-01	SENSOR	
140	3-362-976-01	LEVER, CONTROL	
141	3-362-975-01	LEVER, SENSOR	
142	3-362-977-01	SPRING	
143	3-362-978-01	SPRING, PLATE	
144	3-362-973-01	AS (BASE)	
145	3-362-974-01	GEAR, CAM	
146	3-369-962-01	SPRING, COMPRESSION	
147	3-369-961-01	WASHER	
148	3-385-829-01	BELT	
149	3-385-833-01	BELT (X TYPE)	
150	3-385-827-01	FLYWHEEL ASSY	
151	3-362-970-01	SPRING	
152	3-385-826-01	IDLER ASSY, PF	
* 153	3-385-828-01	HOLDER, MOTOR	
154	3-363-229-01	SCREW	
155	3-385-830-01	SCREW	
156	3-362-958-01	SCREW	
157	3-366-352-01	SCREW	
HE101	1-500-009-11	HEAD, MAGNETIC (ERASE)	
HRP101	1-543-776-11	HEAD, MAGNETIC (REC/PB)	
M901	X-3366-071-1	MOTOR ASSY	
S901	1-572-538-11	SWITCH, LEAF (TC POWER)	

SECTION 6
ELECTRICAL PARTS LIST

MAIN

NOTE:

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms
  METAL : Metal-film resistor
  METAL OXIDE : Metal Oxide-film resistor
  F : nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u : μ, for example :
  uA...: μA..., uPA...: μPA...,
  uPB...: μPB..., uPC...: μPC...,
  uPD...: μPD...
- CAPACITORS
  uF : μF
- COILS
  uH : μH

Ref. No.	Part No.	Description			Remarks
*	A-3060-620-A	MAIN BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C101	1-161-057-00	CERAMIC	0.033uF	10% 50V	
C102	1-124-903-11	ELECT	1uF	20% 50V	
C103	1-126-101-11	ELECT	100uF	20% 16V	
C104	1-124-902-00	ELECT	0.47uF	20% 50V	
C105	1-102-074-00	CERAMIC	0.001uF	10% 50V	
C106	1-102-118-00	CERAMIC	0.0012uF	10% 50V	
C107	1-102-121-00	CERAMIC	2200PF	10% 50V	
C108	1-124-463-00	ELECT	0.1uF	20% 50V	
C109	1-102-973-00	CERAMIC	100PF	5% 50V	
C110	1-102-129-00	CERAMIC	10000PF	10% 50V	
C111	1-161-058-00	CERAMIC	0.039uF	10% 50V	
C112	1-102-943-00	CERAMIC	6.0PF	±0.5PF 50V	
C113	1-126-233-11	ELECT	22uF	20% 50V	
C114	1-123-369-00	ELECT	4.7uF	20% 50V	
C115	1-123-369-00	ELECT	4.7uF	20% 50V	
C116	1-161-055-00	CERAMIC	0.022uF	10% 50V	
C117	1-123-369-00	ELECT	4.7uF	20% 50V	
C118	1-123-369-00	ELECT	4.7uF	20% 50V	
C119	1-102-121-00	CERAMIC	2200PF	10% 50V	
C120	1-102-074-00	CERAMIC	0.001uF	10% 50V	
C121	1-126-101-11	ELECT	100uF	20% 16V	
C122	1-126-101-11	ELECT	100uF	20% 16V	
C123	1-126-335-11	ELECT	220uF	20% 10V	
C124	1-126-335-11	ELECT	220uF	20% 10V	
C125	1-124-559-51	ELECT	1000uF	20% 10V	
C126	1-126-103-11	ELECT	470uF	20% 16V	
C127	1-161-772-11	CERAMIC	0.1uF	10% 25V	
C128	1-126-103-11	ELECT	470uF	20% 16V	
C129	1-161-055-00	CERAMIC	0.022uF	10% 50V	
		< DIODE >			
D103	8-719-911-19	DIODE	1SS119		
D104	8-719-911-19	DIODE	1SS119		
D105	8-719-200-02	DIODE	10E2		
		< IC >			
IC101	1-807-406-11	IC	LA4162		
		< JACK >			
J101	1-750-008-11	JACK (DIA. 3.5) (MIC)			
J102	1-750-008-11	JACK (DIA. 3.5) (EARPHONE)			
J103	1-568-907-21	JACK, EXTERNAL POWER (DC IN 6V)			
		< RESISTOR >			
R101	1-247-717-11	CARBON	2.2K	5% 1/4W	
R102	1-247-722-11	CARBON	5.6K	5% 1/4W	
R103	1-247-710-11	CARBON	560	5% 1/4W	
R104	1-247-717-11	CARBON	2.2K	5% 1/4W	
R105	1-247-717-11	CARBON	2.2K	5% 1/4W	
R106	1-249-463-11	CARBON	27K	5% 1/4W	
R107	1-247-158-00	CARBON	13K	5% 1/4W	
R108	1-247-701-11	CARBON	120	5% 1/4W	
R109	1-247-695-11	CARBON	39	5% 1/4W	
R110	1-247-719-11	CARBON	3.3K	5% 1/4W	
R111	1-249-465-11	CARBON	47K	5% 1/4W	
R112	1-247-725-11	CARBON	10K	5% 1/4W	
R113	1-247-700-11	CARBON	100	5% 1/4W	
R114	1-247-891-00	CARBON	330K	5% 1/4W	
R115	1-249-462-11	CARBON	22K	5% 1/4W	
R116	1-247-697-11	CARBON	56	5% 1/4W	
R122	1-249-453-11	CARBON	3.3	5% 1/4W	
R123	1-247-693-11	CARBON	27	5% 1/4W	
R124	1-247-708-11	CARBON	470	5% 1/4W	
R125	1-249-466-11	CARBON	56K	5% 1/4W	
		< VARIABLE RESISTOR >			
RV101	1-223-299-11	RES, VAR, CARBON 20K (VOL)			
		< SWITCH >			
S101	1-692-401-11	SWITCH, PUSH (REC/PB)			
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Ref. No.	Part No.	Description	Remarks
		MISCELLANEOUS	
		**********	
13	1-548-608-11	COUNTER, TAPE (SMALL TYPE)	
HE101	1-500-009-11	HEAD, MAGNETIC (ERASE)	
HRP101	1-543-776-11	HEAD, MAGNETIC (REC/PB)	
M901	X-3366-071-1	MOTOR ASSY	
MIC901	8-814-186-00	MICROPHONE, ELECTRET CONDENSER	
S901	1-572-538-11	SWITCH, LEAF (TC POWER)	
SP101	1-504-200-11	SPEAKER (6cm)	

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ACCESSORIES & PACKING MATERIALS

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⚠	1-466-977-11	ADAPTOR, AC (AC-E616) (US, Canadian)
⚠	1-466-978-11	ADAPTOR, AC (AC-E616) (UK)
⚠	1-466-979-11	ADAPTOR, AC (AC-E616) (AEP)
*	3-384-620-01	INDIVIDUAL CARTON (E, Saudi Arabia)
*	3-384-621-01	INDIVIDUAL CARTON (US, Canadian)
*	3-384-622-01	INDIVIDUAL CARTON (AEP, UK)
*	3-387-196-01	CUSHION (L)
*	3-387-197-01	CUSHION (R)
	3-756-230-11	MANUAL, INSTRUCTION (English, French, Spanish, Portuguese) (EXCEPT US)
	3-756-230-21	MANUAL, INSTRUCTION (English) (US)
	3-756-230-41	MANUAL, INSTRUCTION (German, Dutch, Swedish, Italian) (AEP)

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HARDWARE LIST

#1	7-685-648-79	SCREW +BVTP 3X12 TYPE2 N-S
#2	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S
#3	7-621-255-10	SCREW +PTT 2X3 (S)
#4	7-685-104-19	SCREW +P 2X6 TYPE2 NON-SLIT
#5	7-621-255-25	SCREW +PTT 2X4 (S)

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.